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In the United States Patent and Trademark Office
on Appeal from the Examiner to the Board
of Patent Appeals and Interferences

In re Application of:	Uwe SYDON
Serial No.:	09/922,460
Filing Date:	August 3, 2001
Group Art Unit:	2683
Examiner:	Joseph D. Nguyen
Title:	**AIR INTERFACE WITH VARIABLE DATA RATE BY SWITCHING THE BIT TIME**

MAIL STOP APPEAL BRIEF - PATENT
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Dear Sir:

Appeal Brief

Appellant has appealed to the Board of Patent Appeals and Interferences ("Board") from the decision of the Examiner mailed April 19, 2005, finally rejecting all pending Claims 1-10, 12, and 14-22. Appellant filed a Notice of Appeal on October 19, 2005, and charged the statutory fee of $500.00 to Deposit Account No. 19-2179 under 37 C.F.R. 1.17(b).

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Real Party In Interest

This Application is currently owned by Siemens Information and Communication Mobile, LLC (the predecessor of Siemens Communications, Inc.) as indicated by:

an Assignment recorded on January 7, 2002 in the Assignment Records of the PTO at Reel 012439, Frame 0867 (3 pages).

Related Appeals and Interferences

To the knowledge of Appellant's counsel, there are no known interferences or judicial proceedings that will directly affect or be directly affected by or have a bearing on the Board's decision regarding this Appeal.

Status of Claims

Claims 1-10, 12, and 14-22 are pending in this Application, stand rejected pursuant to a final Office Action mailed April 19, 2005 (the "Final Office Action"), and are all presented for appeal. Claims 11 and 13 were cancelled in a Response to Office Action faxed on September 19, 2005. All pending claims are shown in Appendix A, attached hereto, along with an indication of the status of those claims.

Status of Amendments

All amendments submitted by Appellant have been entered by the Examiner.

Summary of Claimed Subject Matter

The present invention relates to wireless communications systems and methods where low data rate services, such as, voice and high data rate services, such as, data are communicated over a common air interface. This air interface includes a control channel which assigns and changes the data rate to each of several logical communication channels on a per channel basis. As such, logical communication channels can be set to a low data rate for low data rate services and to a high data rate for high data rate services.

FIGURE 1 illustrates a system 100 in which a communication device 110 communicates with a base station 120 via an air interface 130. In an exemplary embodiment, communication device 110 can be a portable telephone, a personal digital assistant (PDA), or other communication device. Base station 120 can be a portable telephone base station, a communication routing device, or any other device that communicates with communication device 110. Air interface 130 can be a wireless communication interface between communication device 110 and base station 120. Communication system 110 and base station 120 can include a computer system that has a central processing unit (CPU) that executes sequences of instructions contained in a memory. As discussed above, hardwired circuitry can be used in addition to, or in place of, computer software or a computer system including a processing unit.

In an exemplary embodiment, system 100 provides for the communication of both voice and data from communication device 110 to base station 120 via air interface 130. Advantageously, air interface 130 has the ability to change its physical data rate on a channel basis. Air interface 130 can use a frequency hopping spread spectrum as a communication transmission method. Alternatively, air interface 130 can use direct sequencing spread spectrum as a communication transmission method. Air interface 130 has the ability to recognize interfered carriers and avoid them. Air interface 130 is described further with reference to FIGURE 2.

FIGURE 2 illustrates an air interface 200 including communication channels 210. Air interface 200 is a wireless communication interface between communication devices such as the devices in system 100 described with reference to FIGURE 1. Communication channels 210 can include a control channel 220, variable data rate channels 230, 240, and 250, and a high data rate channel 260. In other exemplary embodiments, a different number of data rate

channels (N) can be utilized, for example, N = four or N = five, where N represents the number of data channels.

In an exemplary embodiment, control channel 220 is configured to assign a data rate to variable data rate channels 230, 240, and 250 and high data rate channel 260. Control channel 220 preferably operates at a lowest possible data rate, such as, 16 k bit/sec. As such, control channel 220 uses a low bandwidth, ensuring a high level of sensitivity. Data rate channels 230, 240, and 250 can be assigned a higher data rate that is a multiple (M) of a basic data rate of control channel 220. For example, data rate channels 230, 240, and 250 can have data rates up to 256 k bits/sec.

Control channel 220 can include communication data 222, cyclic redundancy check (CRC) data 224 interfered carrier data 226, channel data rate data 228, and base data rate data 229. Communication data 222 can be voice information or other data to be transmitted at a low data rate. In general, data transmitted at a low data rate has a higher range than data transmitted at a high data rate. A lower data rate also uses lower bandwidth, ensuring a high level of sensitivity. Sensitivity is generally related to range.

CRC data 224 can be data used in performing CRC checks to determine if logical channels have been disturbed and, therefore, need to be retransmitted. Interfered carrier data 226 can be data transmitted in control channel 220 used to recognize interfered carriers. Channel data rate data 228 can include data regarding data rates for variable data rate channels 230, 240, and 250. Base data rate data 229 can include data regarding the base data rate utilized by control channel 228. An example base data rate is 16 k bit/sec, a low data rate which still achieves acceptable voice quality.

Channel data rate data 228 can include values M1, M2, and MN, where N represents the number of variable data rate channels, where M is a value multiplied by the base data rate in base data rate data 229 to obtain a data rate for a particular variable data rate channel 230, 240, or 250. Alternatively, channel data rate data 228 can include the specific data rate for each of the variable data rate channels 230, 240, and 250.

Control channel 220 can assign a data rate to variable data rate channels 230, 240, and 250 based on information about the data to be transmitted. Such information about the type of data to be transmitted can be included in a signal received by control channel 220. As an example, control channel 220 can assign a low data rate where a signal indicates voice data is to be transmitted and a high data rate where a signal indicates computer data is to be

transmitted. Such an indication of data type can be included in a communication signal header. Alternatively, information about the data can be determined based on the quality of a signal received or a combination of the quality of the signal and an indication of the data type in the signal. Such information about the data to be transmitted can be derived from the information itself or from a separate source.

FIGURE 3 is a flow diagram 300 illustrating exemplary steps in a method of operation of air interface 200. In a step 310, the control channel assigns a data rate to each logical channel. For example, the control channel can initially assign a pre-determined default rate to each logical channel. After step 310, a step 320 can be performed in which the control channel assigns a new data rate to a logical channel. In an exemplary embodiment, data rates assigned by the control channel to variable data rate channels (in either step 310 or step 320) can be made by assigning logical channel (N) to a multiple of a base data rate (M * base rate). For example, variable data rate channels can be assigned to data rates, such as, 256 k bits/see or 128 k bits/sec. Example multiples (M) can include 8 or 4, for example.

In a step 330, the control channel can recognize interfered carriers and avoid them. In an exemplary embodiment, the control channel can recognize interfered carriers by using measurements of occurring errors (e.g., bit error rate (BER)) and/or radio signal strength. Interfered carriers are then avoided by being declared or identified as bad and not used. In a step 340, the control channel detects if channels are disturbed. In an exemplary embodiment, the control channel uses CRC checks over part of the bits of a communication channel to decide if the data needs to be retransmitted.

Advantageously, the system and method described with reference to FIGURES 1-3 provides for the capability of changing the bit rate of the communication on a per channel basis. Moreover, the system and method provides a narrow band- voice service in combination with a wide band data service, without changing the modulation scheme. Thus, the system and method described has good sensitivity and, therefore, a good range for narrow band services, such as, voice, while also providing wide band services, such as, data.

With regard to the independent claims currently under Appeal, Appellant provides the following concise explanation of the subject matter recited in the claim elements. For brevity, Appellant does not necessarily identify every portion of the Specification and drawings relevant to the recited claim elements. Additionally, this explanation should not be

used to limit Appellant's claims but is intended to assist the Board in considering the Appeal of this Application.

For example, independent Claim 1 recites the following:

> A method of changing a physical data rate of an air interface on a per channel basis (e.g., Page 3, paragraph 6; Page 8, paragraph 25 through Page 9, paragraph 26), the method comprising:
>
> providing a plurality of logical communication channels, the plurality of logical communication channels being configured to communicate a signal (e.g., Page 6, paragraph 19; Page 7, paragraph 21;);
>
> providing a control channel that assigns data rates to the plurality of logical channels, the control channel including interfered carrier information (e.g., Page 7, paragraph 20; Page 8, paragraph 24; Page 8, paragraph 25; Page 8, paragraph 27); and
>
> changing the data rates of the plurality of logical channels on a per channel basis (e.g., Page 8, paragraph 24; Page 9, paragraph 27).

Grounds of Rejection to be Reviewed on Appeal

Are Claims 1-10, 12, and 14-22 patentable over the Examiner's proposed combinations of U.S. Patent No. 6,526,030 to Rezaiifar et al. ("*Rezaiifar*") with U.S. Patent No. 6,665,538 to Hunte ("*Hunte*"), U.S. Patent No. 6,729,929 to Sayers et al. ("*Sayers*"), U.S. Patent No. 6,275,506 to Fazel et al. ("*Fazel*") under 35 U.S.C. a 103(a)?

Grouping of Claims

Appellant has made an effort to group claims to reduce the burden on the Board. In the Argument section of this Appeal Brief, where appropriate, Appellant presents arguments as to why particular claims subject to a ground of rejection are separately patentable from other claims subject to the same ground of rejection. To reduce the number of groups and thereby reduce the burden on the Board, Appellant does not argue individually every claim that recites patentable distinctions over the references cited by the Examiner, particularly in light of the clear allowability of Appellant's independent claims.

The claims of each group provided below may be deemed to stand or fall together for purposes of this Appeal. The claims may be grouped together as follows for purposes of this Appeal:

1. Group 1 may include independent Claims 1, 10, and 17 and dependent Claims 2, 5, 7, 9, 12, 15, 18, 20, and 22;
2. Group 2 may include dependent Claims 3, 4, 14, and 19;
3. Group 3 may include dependent Claim 6; and
4. Group 4 may include dependent Claims 8 and 21.

Argument:

The Claims are Patentable over the Proposed Combinations

Claims 1-10, 12, and 14-22 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over various combinations of *Rezaiifar*, *Hunte*, *Sayers*, and *Fazel*. A copy of *Rezaiifar* is attached as Appendix B, and a copy of *Hunte* is attached as Appendix C. A copy of *Sayers* is attached as Appendix D, and a copy of *Fazel* is attached as Appendix E. Appellant respectfully submits that the Examiner's proposed combinations of *Rezaiifar*, *Hunte*, *Sayers*, and *Fazel* fail to support the obviousness rejections of these claims. Appellant respectfully submits that these rejections are therefore improper and should be reversed by the Board.

I. Standard

The question raised under 35 U.S.C. § 103 is whether the prior art taken as a whole would suggest the claimed invention taken as a whole to one of ordinary skill in the art at the time of the invention. *See* 35 U.S.C. § 103(a). Accordingly, even if all elements of a claim are disclosed in various prior art references, which is certainly not the case here as discussed below, the claimed invention taken as a whole cannot be said to be obvious without some reason given in the prior art why one of ordinary skill in the art at the time of the invention would have been prompted to modify the teachings of a reference or combine the teachings of multiple references to arrive at the claimed invention.

The M.P.E.P. sets forth the strict legal standard for establishing a *prima facie* case of obviousness based on modification or combination of prior art references. "To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references where combined) must teach or suggest all the claim limitations." M.P.E.P. § 2142, 2143. The teaching, suggestion or motivation for the modification or combination and the reasonable expectation of success must both be found in the prior art and

cannot be based on an Appellant's disclosure. *See Id.* (citations omitted). "Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art" at the time of the invention. M.P.E.P. § 2143.01. Even the fact that references *can* be modified or combined does not render the resultant modification or combination obvious unless the prior art teaches or suggests the desirability of the modification or combination. *See Id.* (citations omitted). Moreover, "To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. All words in a claim must be considered in judging the patentability of that claim against the prior art." M.P.E.P. § 2143.03 (citations omitted).

The governing Federal Circuit case law makes this strict legal standard even more clear.[1] According to the Federal Circuit, "a showing of a suggestion, teaching, or motivation to combine or modify prior art references is an essential component of an obviousness holding." *In re Sang-Su Lee*, 277 F.3d 1338, 1343, 61 U.S.P.Q.2d 1430, 1433 (Fed. Cir. 2002) (quoting *Brown & Williamson Tobacco Corp. v. Philip Morris Inc.*, 229 F.3d 1120, 1124-25, 56 U.S.P.Q.2d 1456, 1459 (Fed. Cir. 2000)). "Evidence of a suggestion, teaching, or motivation . . . may flow from the prior art references themselves, the knowledge of one of ordinary skill in the art, or, in some cases, the nature of the problem to be solved." *In re Dembiczak*, 175 F.3d 994, 999, 50 U.S.P.Q.2d 1614, 1617 (Fed. Cir. 1999). However, the "range of sources available . . . does not diminish the requirement for actual evidence." *Id.* Although a prior art device "may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion or motivation in the reference to do so." *In re Mills*, 916 F.2d at 682, 16 U.S.P.Q.2d at 1432. *See also In re Rouffet,* 149 F.3d 1350, 1357, 47 U.S.P.Q.2d 1453, 1457-58 (Fed. Cir. 1998) (holding a *prima facie* case of obviousness not made where the combination of the references taught every element of the claimed invention but did not provide a motivation to combine); *In Re Jones*, 958 F.2d 347, 351, 21 U.S.P.Q.2d 1941, 1944 (Fed. Cir. 1992) ("Conspicuously missing from this record is any evidence, other than the PTO's speculation (if that can be called evidence) that one of ordinary skill in the herbicidal art would have been motivated to make the modification of the prior art salts

[1] Note M.P.E.P. 2145 X.C. ("The Federal Circuit has produced a number of decisions overturning obviousness rejections due to a lack of suggestion in the prior art of the desirability of combining references.").

necessary to arrive at" the claimed invention.). Even a determination that it would have been obvious to one of ordinary skill in the art at the time of the invention to try the proposed modification or combination is not sufficient to establish a *prima facie* case of obviousness. *See In re Fine*, 837 F.2d 1071, 1075, 5 U.S.P.Q.2d 1596, 1599 (Fed. Cir. 1988).

In addition, the M.P.E.P. and the Federal Circuit repeatedly warn against using an Appellant's disclosure as a blueprint to reconstruct the claimed invention. For example, the M.P.E.P. states, "The tendency to resort to 'hindsight' based upon applicant's disclosure is often difficult to avoid due to the very nature of the examination process. However, impermissible hindsight must be avoided and the legal conclusion must be reached on the basis of the facts gleaned from the prior art." M.P.E.P. § 2142. The governing Federal Circuit cases are equally clear. "A critical step in analyzing the patentability of claims pursuant to [35 U.S.C. § 103] is casting the mind back to the time of invention, to consider the thinking of one of ordinary skill in the art, guided only by the prior art references and the then-accepted wisdom in the field. . . . Close adherence to this methodology is especially important in cases where the very ease with which the invention can be understood may prompt one 'to fall victim to the insidious effect of a hindsight syndrome wherein that which only the invention taught is used against its teacher.'" *In re Kotzab,* 217 F.3d 1365, 1369, 55 U.S.P.Q.2d 1313, 1316 (Fed. Cir. 2000) (citations omitted). In *In re Kotzab*, the Federal Circuit noted that to prevent the use of hindsight based on the invention to defeat patentability of the invention, the court requires the Examiner to show a motivation to combine the references that create the case of obviousness. *See id. See also, e.g., Grain Processing Corp. v. American Maize-Products,* 840 F.2d 902, 907, 5 U.S.P.Q.2d 1788, 1792 (Fed. Cir. 1988). Similarly, in *In re Dembiczak*, the Federal Circuit reversed a finding of obviousness by the Board, explaining that the required evidence of such a teaching, suggestion, or motivation is essential to avoid impermissible hindsight reconstruction of an applicant's invention:

> Our case law makes clear that the best defense against the subtle but powerful attraction of hind-sight obviousness analysis is *rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references.* Combining prior art references without evidence of such a suggestion, teaching, or motivation simply takes the inventor's disclosure as a

> blueprint for piecing together the prior art to defeat patentability—the essence of hindsight.

175 F.3d at 999, 50 U.S.P.Q.2d at 1617 (emphasis added) (citations omitted).

II. The *Rezaiifar* Reference

The *Rezaiifar* reference discloses a channel structure for use in communication systems. Two sets of physical channels, one for the forward link and another for the reverse link, are utilized to facilitate communication of a variety of logical channels. The physical channels comprise data and control channels. In the exemplary embodiment, the data channels comprise fundamental channels which are used to transmit voice traffic, data traffic, high speed data, and other overhead information and supplemental channels which are used to transmit high speed data. The fundamental channels can be released when the remote stations are idle to more fully utilized the available capacity. The control channels are used to transmit paging and control messages and scheduling information. (Abstract).

Referring to the figures, FIG. 1 represents an exemplary communication system. One such system is the CDMA communication system which conforms to the IS-95 standard. Another such system is described in the aforementioned U.S. Pat. No. 5,930,230. The communication system comprises multiple cells 2a-2g. Each cell 2 is serviced by a corresponding base station 4. Various remote stations 6 are dispersed throughout the communication system. In the exemplary embodiment, each of remote stations 6 communicates with zero or more base station 4 on the forward link at each traffic channel frame or frame. For example, base station 4a transmits to remote stations 6a and 6j, base station 4b transmits to remote stations 6b and 6j, and base station 4c transmits to remote stations 6c and 6h on the forward link at frame i. As shown by FIG. 1, each base station 4 transmits data to zero or more remote stations 6 at any given moment. In addition, the data rate can be variable and can be dependent on the carrier-to-interference ratio (C/I) as measured by the receiving remote station 6 and the required energy-per-bit-to-noise ratio (E.sub.b /N.sub.0). The reverse link transmissions from remote stations 6 to base stations 4 are not shown in FIG. 1 for simplicity. (Column 5, lines 13-34).

In the exemplary embodiment, the forward link, comprises the following physical channels: pilot channel, sync channel, paging channel, fundamental channel, supplemental channel, and control channel. The forward link physical channels facilitate transmissions of a variety of logical channels. In the exemplary embodiment, the forward link logical channel comprises: the physical layer control, media access control (MAC), user traffic stream, and signaling. A diagram illustrating the relationship between the physical and logical channels on the forward link is shown in FIG. 3. The forward link logical channels are further described below. (Column 7, lines 30-41).

In the exemplary embodiment, as shown in Table 1, the control channel frame format for the forward link schedule comprises the frame type, the assigned forward link rate, and the duration of the forward link rate assignment. The frame type indicates whether the control channel frame is for the forward link schedule, the reverse link schedule, the supplemental channel active set, or the erasure-indicator-bit (EIB) and fundamental frame indicator. Each of these control channel frame formats is discussed below. The forward link rate indicates the assigned data rate for the upcoming data transmission and the duration field indicates the duration of the rate assignment. The exemplary number of bits for each field is indicated in Table 1, although different number of bits can be used and are within the scope of the present invention. (Column 9, lines 53-67).

TABLE 1

Description	# of Bits
Frame Type	2
Forward Link Rate	4
Duration of Forward Link Rate Assignment	4
Total	10

In the exemplary embodiment, as shown in Table 2, the control channel frame format for the reverse link schedule comprises the frame type, the granted reverse link rate, and the duration of the reverse link rate assignment. The reverse link rate indicates the data rate which has been granted for the upcoming data transmission. The duration field indicates the duration of the rate assignment for each of the carriers. (Column 10, lines 11-16).

TABLE 2

Description	# of Bits
Frame Type	2
Reverse Link Rate (Granted)	4

```
Duration of Reverse Link Rate Assignment 12 (4 per carrier)
Total                                     18
```

In the exemplary embodiment, base station 4 can receive reports from remote station 6 indicating the identity of the strongest pilot within the active set of remote station 6 and all other pilots in the active set which are received within a predetermined power level (.DELTA.P) of the strongest pilot. This is discussed in detail below. In response to this power measurement report, base station 4 can send a control channel frame on the control channel to identify a modified set of channels from which remote station 6 is to receive supplemental channels. In the exemplary embodiment, the code channels corresponding to the supplemental channels for all members of the active set are transmitted to remote station 6 via signaling messages. (Column 10, lines 27-39).

In the exemplary embodiment, the supplemental channel is used to support high speed data services. In the exemplary embodiment, the supplemental channel supports a plurality of data rates but the data rate does not change dynamically during a transmission. In the exemplary embodiment, the data rate on the supplemental channel is requested by remote station 6 and granted by base station 4. (Column 11, line 66 through Column 12, line 5).

III. The *Hunte* Reference

The *Hunte* reference discloses a means of automatically determining or setting or adapting the cell plan of a cellular data communications system using information readily available from the system, without the need for "by hand" measurement and without the need for costly or complicated additional features or equipment in the system. The present invention this provides that the effort and cost involved in determining and/or maintaining an appropriate cell plan, and in determining and/or effecting necessary adaptations to cell borders, can be significantly reduced. (Column 4, lines 2-11).

FIG. 1 is simplified schematic illustration of cells A, B, C, D, E, F, and G, in a cellular communications system. Within each cell the base station responsible for communications in that cell is similarly labeled A, B, C, D, E, F, and G. A mobile station 1, initially within the bounds of Cell A communicates by way of base station A. When the

mobile station moves from cell A to cell B, as indicated by arrow 2, responsibility for communication with the mobile station (1H) is handed over to base station B as the mobile station crosses the effective communications boundary between cells A and B. The situation is, of course, similar when a mobile station crosses from cell A to cell C, or from any one cell to an adjacent cell. For the purpose of simplification, reference will in general be made in the following only to cells A and B. Means and methods of handling such cell handovers are well known to those skilled in the art. (Column 4, lines 49-64).

GPRS, as mentioned above, is one example of a cellular data communications system offering different coding schemes for the transfer of data. GPRS is a packet based data communications system, intended to extend present GSM cellular communication systems, and offers four different coding schemes (for instance for downlink, i.e. base station to mobile station, communications), CS1, CS2, CS3 and CS4, which provide useful data transfer rates of 9.05, 13.4, 15.6 and 21.4 kbits/sec (code rates 1/2, 2/3, 3/4 and 1), as illustrated in the Table of FIG. 2. (Column 4, line 65 through Column 5, line 7).

A cellular data communications system such as GPRS will have to contend with more or less adverse communication conditions and the different coding schemes for data carried, which can be selected depending on the adversity of the communications conditions encountered at any given time for a transfer of data, increase the availability and robustness of the system. In general, the aim of offering different coding schemes, and hence different useful data transfer rates, is to ensure--as far as is feasible--that data communications are possible even in adverse communications conditions, albeit perhaps at a lower useful data transfer rates, whilst adopting higher useful data transfer rates when communications conditions are more favorable. (Column 5, lines 8-19).

Data communications systems, such as GPRS, can provide for dynamic selection of the coding scheme used, and hence dynamic adaptation of the useful data transfer rate, depending upon current communication conditions. This so-called dynamic link adaptation enables the system to opportunistically increase the data transfer rate of an established link when conditions allow, and retreat to a lesser transfer rate when conditions are more adverse. (Column 5, lines 27).

This dynamic link adaptation may be based on reports from the receiving terminal or mobile station to a base station, concerning quality of reception of a current message or sequence of radio blocks, which can then affect subsequent transmissions or radio blocks sent from the base station to the mobile station to cause a different coding scheme to be used. For example, dynamic link adaptation may use reports transmitted from mobile stations to the system in response to and order from the system. Such a report may for instance contain information relating to the last transmitted series of radio blocks from the system to the mobile station. Information included may be carrier strength (C), interference (I), signal variance (Sign_VAR), block error rate and bit error rate. Depending on this information, link adaptation functionality can select the coding scheme, of those available, for a next sequence of radio blocks. However, it should be understood that the details of the procedure, method or means used to assess communications links are not directly relevant to the present invention: it is relevant only that some means of assessment are available. Likewise, the procedure, method or means used to dynamically adapt communications links to use different coding schemes or useful data transfer rates are not of direct relevance to the present invention: it is relevant only that dynamic adaptation of the communications links is possible and that information concerning the dynamic adaptations is made available and can be stored as a "history" of the system, for example as historical statistics of the usage of different coding schemes in the GPRS system. The present invention can effectively exploit any mode of dynamic link adaptation and any form of history of such adaptation. In effect, in a system in accordance with the present invention, any means or method of monitoring effectiveness of established data communications links may be used as a basis for selection of the best possible momentary data transfer mode for current communication conditions, and any form of history recordal of the selections made can be used as a basis for the present invention. (Column 5, lines 28-64).

IV. The *Sayers* Reference

The *Sayers* reference discloses a communications system extending over a cellular region and formed of a plurality of wireless cells. The communications system extends over a cellular region formed of a plurality of wireless cells. Each cell covers an area which includes

a portion of the cellular region. Each particular cell includes a base station having a transmitter for transmitting a particular cell signal having parameters including a transmitting frequency and a transmitting power. The particular cell signal is transmitted to cover a portion of the cell region. Each of the base stations includes a parameter detector for detecting the other parameters of the other cell signals from the other cells in the cellular region. A parameter controller controls the particular parameters for the particular cell. The parameters for the particular cell are based upon the other parameters for the other cell signals so that the particular cell signal does not interfere with the other cell signals in the cellular region. (Abstract).

Regarding radio transmission, the BTS is responsible for maintaining the radio link with the GSM Mobile station. Currently the GSM system can support three frequency bands at 900, 1800 and 1900 MHz. However in each band the physical TDMA structure is identical. Each RF carrier is divided into eight time slots using TDMA. Groups of eight consecutive time slots form TDMA frames. (Column 3, lines 36-43).

There are two types of logical channels that are sent over the physical radio interface and these are Traffic channels and Common Control Channels. The traffic channels provide a bi-directional point-to-point transmission link to a mobile station. Full-rate Traffic Channels (TCH/F) and half-rate Traffic Channels (TCH(H) are allocated together with a low bit-rate Slow Associated Control Channel (SACCH), which typically transmits measurements needed for handover decisions. There are also eighth-rate Traffic Channels, also called Stand-alone Dedicated Control Channels (SDCCH), which are used primarily for transmitting location updating information. In addition, a TCH slot can be pre-empted for signaling, in which case it is called a Fast Associated Control Channel (FACCH), which can be either full-rate or half-rate TCHs. (Column 3, lines 44-58).

Common channels can be accessed both by idle mode mobiles, in order to change to dedicated mode, and by dedicated mode mobiles, to monitor surrounding base stations for handover information. The common channels, which are defined include:

> Broadcast Control Channel (BCCH): Continually broadcasts, on the downlink, information including base station identity, frequency allocations, and frequency-hopping sequences.
>
> Frequency Correction Channel (FCCH) and Synchronization Channel (SCH): Used to synchronize the mobile to the time slot structure of a cell by defining the beginning of a TDMA frame.
>
> Random Access Channel (RACH): Slotted Aloha channel used by the mobile to request access to the network.
>
> Paging Channel (PCH): Used to alert the mobile station of incoming call.
>
> Access Grant Channel (AGCH): Used to allocate an SDCCH to a mobile for signaling (in order to obtain a dedicated channel), following a request on the RACH.

(Column 3, line 59 through Column 4, line 13).

With regard to speech and channel coding on the radio interface, speech in GSM is digitally coded at a rate of 13 kbps, so-called full-rate speech coding. This rate is efficient compared with the standard ISDN rate of 64 kbps. In addition, GSM also supports a half-rate speech code operating at around 7 kbps, effectively doubling the capacity of a network. (Column 4, lines 14-20).

This 13 kbps digital stream is split into (260 bits every 20 ms). This data contains some forward error correction raising the gross bit rate after channel coding to 22.8 kbps (or 456 bits every 20 ms). These 456 bits are divided into eight 57-bit blocks, and the result is interleaved amongst eight successive time slot bursts for protection against burst transmission errors. (Column 4, lines 21-27).

Each time slot burst is 156.25 bits and contains two 57-bit blocks, and a 26-bit training sequence used for equalization. A burst is transmitted in 0.577 us for a total bit rate of 270.8 kbps, and is modulated using Gaussian Minimum Shift Keying (GMSK) onto a 200 kHz carrier frequency. The 26-bit training sequence (TSC) is of a known pattern that is compared with the received pattern to perform a channel estimation. This channel estimation is then used to recover the received signal. Forward error control and equalization contribute to the robustness of GSM radio signals against interference and multipath fading. (Column 4, lines 28-39).

V. The *Fazel* Reference

According to *Fazel*, the transmission of information between the strongly increasing number of multimedia terminals, for example television sets (portable or fixed TV sets), video recorders, computers (fixed personal computers or portable laptops), personal digital assistants (PDA), cordless telephones, alarm systems etc., in a local network (LAN, Local Area Network), for example in an indoor network, and the execution and organization of said transmission result in novel local networks. (Column 1, lines 4-15).

Accordingly, in the radio transmission method according to the invention, which operates with a mixed frequency and time division multiplex method FDMA/TDMA, in which a relatively broad frequency band is divided according to the FDMA method into a plurality of carrier frequency ranges, namely the so-called main channels, and a plurality of time slots, namely the so-called sub-channels, distributed in a frame structure, are formed on each carrier frequency level according to the TDMA method, a grouping, that is to say a so-called cluster, of subscriber stations is assigned a limited number of main channels. A main channel signal is divided into one or more sub-channel signals which are associated with a cluster and which are transmitted using the TDMA method. Each transmitter of an activated subscriber station transmits a detectable check signal, so that, on the basis of detection of a check signal in the respective receiver, other, newly activated subscriber stations can determine the presence of transmit signals which are present within a specific, spatially limited range, namely their own respective transmission range. The method according to the invention can be used for transmitting information between terminals in indoor networks in a wireless manner without a central station. (Abstract).

VI. The Proposed Combinations of *Rezaiifar*, *Hunte*, *Sayers*, and *Fazel* Fail to Disclose, Teach, or Suggest Various Limitations Recited in Appellant's Claims

Claims 1-10, 12, and 14-22 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over various combinations of *Rezaiifar*, *Hunte*, *Sayers*, and *Fazel*. Appellant

respectfully submits, however, that Claims 1-10, 12, and 14-22 are clearly patentable over the cited references. Appellant respectfully submits that these rejections are, therefore, improper and should be reversed by the Board.

A. Group 1 (Claims 1, 2, 5, 7, 9, 10, 12, 15, 17, 18, 20, and 22)

Claims 1, 2, 5, 7, 9, 10, 12, 15, 17, 18, 20, and 22 stand rejected under 35 U.S.C. § 103(a) as being anticipated by the *Rezaiifar-Hunte* combination.

1. The Claims of Group 1 are Allowable over the Proposed *Rezaiifar-Hunte* Combination

First, Appellant respectfully submits that the *Rezaiifar-Hunte* combination does not disclose, teach, or suggest each and every element recited in Appellant's Claims 1, 2, 5, 7, 9, 10, 12, 15, 17, 18, 20, and 22. For example, Independent Claim 1 recites:

> A method of changing a physical data rate of an air interface on a per channel basis, the method comprising:
> providing a plurality of logical communication channels, the plurality of logical communication channels being configured to communicate a signal;
> providing a control channel that assigns data rates to the plurality of logical channels, the control channel including interfered carrier information; and
> changing the data rates of the plurality of logical channels on a per channel basis.

The M.P.E.P. provides that "[a]ll words in a claim must be considered in judging the patentability of that claim against the prior art." M.P.E.P. § 2143.03 (citing *In re Wilson*, 424 F.2d 1382, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970)). Because neither, *Rezaiifar* nor *Hunte* disclose, teach, or suggest each and every element recited in Appellant's Claim 1, Appellant respectfully submits that the combination of features and operations recited in Appellant's Claim 1 is not disclosed, taught, or suggested by the proposed *Rezaiifar-Hunte* combination.

In the Final Office Action, the Examiner acknowledges that *Rezaiifar* does not disclose a control channel including interfered carrier information." (Office Action, page 3).

The Examiner instead relies upon *Hunte* for the disclosure of the recited features. (Office Action, pages 3-4). As summarized above, however, in Section III of this Appeal Brief, *Hunte* merely discloses a method and apparatus for determining a cell border between first (A) and second (B) cells in a cellular communications system, such as GPRS, in which communications with mobile stations (1, 1H) can be effected at different effective transfer rates (CS1 to CS4) in dependence upon communication conditions, and can be handed over from the first cell (A) to the second cell (B)." (Abstract). Thus, the techniques disclosed in *Hunte* are limited to "reduc[ing] or minimiz[ing] changes in data rates in on-going communications links at cell handover and thereby reduc[ing] the risk of disruption to data transfer." (Column 4, lines 15-18).

With regard to data transfer rates, *Hunte* discloses generally that data communications systems, such as GPRS, can provide for dynamic selection of the coding scheme used, and hence dynamic adaptation of the useful data transfer rate, depending upon current communication conditions. (Column 5, lines 20-23). *Hunte* further discloses that "this dynamic link adaptation may be based on reports from the receiving terminal or mobile station to a base station, concerning quality of reception of a current message or sequence of radio blocks . . ." (Column 5, lines 27-33). "Such a report may for instance contain information relating to the last transmitted series of radio blocks from the system to the mobile station," and may specifically include "carrier strength (C), interference (I), signal variance (Sign_VAR), block error rate and bit error rate." (Column 5, lines 33-40).

The M.P.E.P. provides that "[a]ll words in a claim must be considered in judging the patentability of that claim against the prior art." M.P.E.P. § 2143.03 (citing *In re Wilson*, 424 F.2d 1382, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970)). In the Final Office Action, the Examiner states:

> It is noted that information about voice/data channels between communicating entities and subsequent selection/allocation of a usable channel is made using control/signaling channels. Examiner considers the carrier interference information cited in *Hunte's* reference is exchanged using control channels.

(Final Office Action, page 4). The Examiner does not indicate, however, where the alleged "control/signaling channels" are actually disclosed in *Hunte*. Furthermore, Appellant respectfully disagrees with the Examiner's characterization of the *Hunte* reference. As applied to the handling of cell block hand-off, *Hunte* discloses that "it is relevant only that dynamic adaptation of the communications links is possible and that information concerning the dynamic adaptations is made available and can be stored as a "history" of the system, for example as historical statistics of the usage of different coding schemes in the GPRS system." (Column 5, lines 45-55). *Hunte* does not disclose, teach, or suggest "a control channel including interfered carrier information," as recited in Claim 1. Because the Examiner has not shown where the combination of elements is disclosed in either *Rezaiifar* or *Hunte,* Appellant submits that the rejection of Appellant's claims over the *Rezaiifar-Hunte* combination is improper and should be withdrawn.

For at least these reasons, Appellant respectfully submits that the proposed *Rezaiifar-Hunte* combination fails to disclose, teach, or suggest each and every limitation recited in Appellant's independent Claim 1 and its respective dependent claims (including Claims 2, 5, 7, and 9). For at least analogous reasons, Appellant's respectfully submit that the rejection of independent Claims 10 and 17 and their respective dependent claims (including Claims 12, 15, 18, 20, and 22) is improper and should be reversed by the Board.

2. The Proposed *Rezaiifar-Hunte* Combination is Improper

Second, Appellant submits that the Examiner has not demonstrated the requisite teaching, suggestion, or motivation in *Rezaiifar*, *Hunte*, or the knowledge generally available to those of ordinary skill in the art at the time of the invention to modify or combine *Rezaiifar* and *Hunte* in the manner the Examiner proposes. The rejections are improper and should be reversed for at least this additional reason.

As discussed above in Section I of this Appeal Brief, the question raised under 35 U.S.C. § 103 is whether the prior art taken as a whole would suggest the claimed invention taken as a whole to one of ordinary skill in the art at the time of the invention. Accordingly, even if all elements of a claim are disclosed in various prior art references, which is certainly not the case

here as discussed above, the claimed invention taken as a whole cannot be said to be obvious without some reason given in the prior art why one of ordinary skill at the time of the invention would have been prompted to modify the teachings of a reference or combine the teachings of multiple references to arrive at the claimed invention. It is clear based at least on the many distinctions discussed above that the proposed *Rezaiifar-Hunte* combination does not, taken as a whole, suggest the claimed invention, taken as a whole. Rather, Appellant respectfully submits that the Examiner has merely pieced together disjointed portions of references, with the benefit of hindsight using Appellant's claims as a blueprint, in an attempt to reconstruct Appellant's claims.

According to the Examiner, "it would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the teachings of *Rezaiifar* with that of *Hunte* for the advantage [of] exchanging information that enables a system to opportunistically increase a data transfer rate when conditions allow and retreat to a lesser transfer rate when conditions are more adverse (col. 5, lines 20-27)." (Final Office Action, page 4). This reasoning merely presents an advantage of dynamic link adaptation taken from *Hunte*. While the Examiner has cited a portion of *Hunte* that touts an advantage of dynamic link adaptation, the Examiner has not pointed to any portions of the cited references that would teach, suggest, or motivate one of ordinary skill in the art at the time of invention to incorporate the dynamic link adaptation disclosed in *Hunte* with the channel structure disclosed in *Rezaiifar*. In other words, the alleged advantage of the system disclosed in *Hunte* does not provide an explanation as to: (1) why it would have been obvious to one of ordinary skill in the art at the time of Appellant's invention (***without using Appellant's' claims as a guide***) to modify the channel structure disclosed in *Rezaiifar* to include the dynamic link adaptation disclosed in *Hunte*; (2) how one of ordinary skill in the art at the time of Appellant's invention would have actually and successfully done so; and (3) how doing so would purportedly meet the limitations of Claim 1. Thus, there is no "factual inquiry" in this reasoning, and this reasoning surely cannot be said to be "thorough and searching." Indeed, if it were sufficient for Examiners to merely point to a purported advantage of one reference and conclude that it would have been obvious to combine of modify that reference with other references simply based on that advantage (which, as should be evident from the case law discussed above, it certainly is not), then virtually any two or

more references would be combinable just based on the fact the one reference states an advantage of its system. Of course, as the Federal Circuit has made clear and as discussed above, that is not the law.

Furthermore, it certainly would not have been obvious to one of ordinary skill in the art at the time of invention ***to even attempt*** to, let alone ***to actually***, modify or combine the particular techniques disclosed in *Hunte* with the channel structure of *Rezaiifar* in the manner proposed by the Examiner.[2] In fact, *Rezaiifar* does not disclose, teach, or suggest dynamic link adaptation or indicate how it might be used by a control channel. *Rezaiifar* merely discloses a scheduler (12) that allocates data rates for forward and reverse supplemental channels before the data is transmitted. (*Rezaiifar*, column 9, lines 7-9). Appellant respectfully submits that the Examiner's attempt to modify or combine *Rezaiifar* with *Hunte* appears to constitute the type of impermissible hindsight reconstruction of Appellant's claims, using Appellant's claims as a blueprint, that is specifically prohibited by the M.P.E.P. and governing Federal Circuit cases. Accordingly, since the prior art fails to provide the required teaching, suggestion, or motivation to combine *Rezaiifar* and *Hunte* in the manner the Examiner proposes, Appellant respectfully submits that the Examiner's conclusions set forth in the Office Action do not meet the requirements set forth in the M.P.E.P. and the governing Federal Circuit case law for demonstrating a *prima facie* case of obviousness.

For at least these reasons, Appellant respectfully submits that the proposed *Rezaiifar-Hunte* combination is improper with respect to in Appellant's independent Claim 1 and its dependent claims (including Claims 2, 5, 7, and 9). For at least analogous reasons, Appellant respectfully submits that the rejection of independent Claims 10 and 17 and their respective dependent claims (including Claims 12, 15, 18, 20, and 22) is improper and should be reversed by the Board.

[2] If "common knowledge" or "well known" art is relied upon by the Examiner to combine or modify the references, Appellant respectfully requests that the Examiner provide a reference pursuant to M.P.E.P. § 2144.03 to support such an argument. If the Examiner relies on personal knowledge to supply the required motivation or suggestion to combine or modify the references, Appellant respectfully requests that the Examiner provide an affidavit supporting such facts pursuant to M.P.E.P. § 2144.03.

B. Group 2 (Claims 3, 4, 14, and 19)

Claims 3, 4, 14, and 19 stand rejected under 35 U.S.C. § 103(a) as being anticipated by the *Rezaiifar-Hunte-Sayers* combination. First, Appellant respectfully submits that Claims 3-4, 14, and 19 are patentable at least because they depend on Claims 1, 10, and 17 respectively, which Appellant has shown above to be allowable. Second, Appellant submits that the Examiner has not demonstrated the requisite teaching, suggestion, or motivation in *Rezaiifar*, *Hunte*, *Sayers*, or the knowledge generally available to those of ordinary skill in the art at the time of the invention to modify or combine *Rezaiifar*, *Hunte*, and *Sayers* in the manner the Examiner proposes. The rejections are improper and should be reversed for at least this additional reason.

Appellant reiterates the standard discussed above in Section I of this Appeal Brief for maintaining a rejection under 35 U.S.C. §103. Even if all elements of a claim are disclosed in various prior art references, which is certainly not the case here as discussed above, the claimed invention taken as a whole cannot be said to be obvious without some reason given in the prior art why one of ordinary skill at the time of the invention would have been prompted to modify the teachings of a reference or combine the teachings of multiple references to arrive at the claimed invention. With respect to Claims 3, 4, 14, and 19, Appellant respectfully submits that the Examiner has merely pieced together disjointed portions of references, with the benefit of hindsight using Appellant's claims as a blueprint, in an attempt to reconstruct Appellant's claims.

According to the Examiner, "it would have been obvious for one [of] ordinary skill in the art at the time the invention was made to modify the [teachings of *Rezaiifar* and *Hunte*] with the teaching of *Sayers* in order to assign the channel to the mobile terminal with requested rate and to avoid dead-spots." (Final Office Action, page 8). The Examiner has not pointed to any portions of the cited references, however, that would teach, suggest, or motivate one of ordinary skill in the art at the time of invention to incorporate the teachings of *Sayers* with the channel structure disclosed in *Rezaiifar* and the dynamic link adaptation of *Hunte*. Again, the Examiner has merely provided a conclusory statement identifying an advantage that is allegedly provided by the teachings of *Sayers* (and Appellant does not admit that *Sayers* discloses such an advantage). In other words, the Examiner has not provided an

explanation as to: (1) why it would have been obvious to one of ordinary skill in the art at the time of Appellant's invention (***without using Appellant's' claims as a guide***) to modify the channel structure disclosed in *Rezaiifar* and the dynamic link adaptation disclosed in *Hunte* to include the frequency hopping spectrum of *Sayers*; (2) how one of ordinary skill in the art at the time of Appellant's invention would have actually and successfully done so; and (3) how doing so would purportedly meet the limitations of Claims 3, 4, 14, and 19. Thus, there is no "factual inquiry" in this reasoning, and this reasoning surely cannot be said to be "thorough and searching." Indeed, if it were sufficient for Examiners to merely point to a purported advantage of one reference and conclude that it would have been obvious to combine of modify that reference with other references simply based on that advantage (which, as should be evident from the case law discussed above, it certainly is not), then virtually any two or more references would be combinable just based on the fact the one reference states an advantage of its system. Of course, as the Federal Circuit has made clear and as discussed above, that is not the law.

For at least these reasons, Appellant respectfully submits that the proposed *Rezaiifar-Hunte-Sayers* combination is improper with respect to in Appellant's dependent Claims 3, 4, 14, and 19 and should be reversed by the Board.

C. Group 3 (Claim 6)

Claim 6 also stands rejected under 35 U.S.C. § 103(a) as being anticipated by the *Rezaiifar-Hunte* combination .

1. Claim 6 of Group 3 are Allowable over the Proposed *Rezaiifar-Hunte* Combination

First, Appellant respectfully submits that Claim 6 is patentable at least because it depends on Claim 1, which Appellant has shown above to be allowable. Second, Claim 6 recites additional elements that distinguish the art. For example, Claim 6 recites "that the selected data rate is a multiple of a basic data rate." In the Final Office Action, the Examiner specifically relies upon *Rezaiifar* for disclosure of the recited claim language. The relied upon portion of *Rezaiifar*, however, merely discloses:

> A significant difference between voice services and data services is that the former requires a fixed and common grade of service (GOS) for all users. Typically, for digital systems providing voice services, this translates into a fixed and equal data rate for all users and a maximum tolerable value for the error rates of the speech frames, independent of the link resource. For the same data rate, a higher allocation of resource is required for users having weaker links. This results in an inefficient use of the available resource.

(Column 2, lines 35-44). Thus, the cited portion of *Rezaiifar* discloses, teaches, or suggests neither a basic data rate or a multiple of the basic data rate. The recited elements are completely absent from the disclosure of *Rezaiifar*.

For at least these reasons, Appellant respectfully submits that the proposed *Rezaiifar-Hunte* combination is improper with respect to in Appellant's dependent Claim 6 and should be reversed by the Board.

2. The Proposed *Rezaiifar-Hunte* Combination is Improper

Second, Appellant submits that the Examiner has not demonstrated the requisite teaching, suggestion, or motivation in *Rezaiifar*, *Hunte*, or the knowledge generally available to those of ordinary skill in the art at the time of the invention to modify or combine *Rezaiifar* and *Hunte* in the manner the Examiner proposes. The rejections are improper and should be reversed for at least this additional reason.

Appellant reiterates the standard discussed above in Section I of this Appeal Brief for maintaining a rejection under 35 U.S.C. §103. Even if all elements of a claim are disclosed in various prior art references, which is certainly not the case here as discussed above, the claimed invention taken as a whole cannot be said to be obvious without some reason given in the prior art why one of ordinary skill at the time of the invention would have been prompted to modify the teachings of a reference or combine the teachings of multiple references to arrive at the claimed invention. For the same reasons discussed above with respect to Claim 1, Appellant respectfully submits that the Examiner has merely pieced together disjointed portions of references, with the benefit of hindsight using Appellant's claim as a blueprint, in an attempt to

reconstruct Appellant's Claim 6. The Examiner has not pointed to any portions of the cited references, however, that would teach, suggest, or motivate one of ordinary skill in the art at the time of invention to incorporate the dynamic link adaptation of *Hunte* into the channel structure disclosed in *Rezaiifar*.

For at least these reasons, Appellant respectfully submits that the proposed *Rezaiifar-Hunte* combination is improper with respect to in Appellant's dependent Claim 6 and should be reversed by the Board.

D. Group 4 (Claims 8 and 21)

Claims 8 and 21 stand rejected under 35 U.S.C. § 103(a) as being anticipated by the *Rezaiifar-Hunte-Sayers* combination.

1. The Claims of Group 4 are Allowable over the Proposed *Rezaiifar-Hunte* Combination

First, Appellant respectfully submits that Claims 8 and 21 are patentable at least because they depend on Claims 1 and 17 respectively, which Appellant has shown above to be allowable. Second, Appellant submits that Claims 8 and 21 recite additional elements that further distinguish the art. For example, Claim 8 incorporates the features recited in Claim 7 and further recites that "the high data rate is between 32 k bits/sec and 256 k bits/sec and the low data rate is between 16 k bits/sec and 32 bits/sec." Thus, Claim 8 recites that the logical communication channels having a high data rate communicate data information at a rate between 32 k bits/sec and 256 k bits/sec. Claim 8 also recites that the logical communication channels having a low data rate communicate voice information at a rate between 16 k bits/sec and 32 k bits/sec. Claim 21 recites certain analogous features and operations.

In the Final Office Action, the Examiner acknowledges that *Rezaiifar* does not disclose the recited features. Instead, the Examiner relies upon *Sayers* for disclosure of the recited that "the high data rate [for data information] is between 32 k bits/sec and 256 k bits/sec and the low data rate [for voice information] is between 16 k bits/sec and 32 k bits/sec. The relied upon portion of *Sayers*, however, merely discloses:

> Speech in GSM is digitally coded at a rate of 13 kbps, so-called full rate speech coding. This rate is efficient compared with the standard ISDN rate of 64 kbps. In addition, GSM also supports a half-rate speech code operating at around 7 kbps, effectively doubling the capacity of a network..

(Column 2, lines 35-44). Thus, even to the extent that speech in GSM is analogous to Appellant's "voice information" (which Appellant does not admit), the data rate disclosed in *Sayers* as being associated with speech in GSM is not even within Appellant's claimed low data rate between 16 k bits/sec and 32 k bits/sec. Furthermore, the Examiner has not identified a portion of *Rezaiifar, Hunte,* or *Sayers* that discloses the high data rate [for data information] being "between 32 k bits/sec and 256 k bits/sec," as recited in Claims 8 and 21.

For at least these reasons, Appellant respectfully submits that the proposed *Rezaiifar-Hunte-Sayers* combination is improper with respect to in Appellant's dependent Claims 8 and 21 and should be reversed by the Board.

2. The Proposed *Rezaiifar-Hunte-Sayers* Combination is Improper

Second, Appellant submits that the Examiner has not demonstrated the requisite teaching, suggestion, or motivation in *Rezaiifar, Hunte, Sayers,* or the knowledge generally available to those of ordinary skill in the art at the time of the invention to modify or combine *Rezaiifar, Hunte,* and *Sayers* in the manner the Examiner proposes. The rejections are improper and should be reversed for at least this additional reason.

Appellant reiterates the standard discussed above in Section I of this Appeal Brief for maintaining a rejection under 35 U.S.C. §103. Even if all elements of a claim are disclosed in various prior art references, which is certainly not the case here as discussed above, the claimed invention taken as a whole cannot be said to be obvious without some reason given in the prior art why one of ordinary skill at the time of the invention would have been prompted to modify the teachings of a reference or combine the teachings of multiple references to arrive at the claimed invention. With respect to Claims 8 and 21, Appellant respectfully submits that the Examiner has merely pieced together disjointed portions of references, with the benefit of

hindsight using Appellant's claims as a blueprint, in an attempt to reconstruct Appellant's claims.

According to the Examiner, "it would have been obvious for one [of] ordinary skill in the art at the time the invention was made to modify the *Rezaiifar et al.* with the teaching of *Sayers et al.* of logical channel of data rate in order to provide the mobile terminal with the data rate requesting." (Final Office Action, page 9). The Examiner has not pointed to any portions of the cited references, however, that would teach, suggest, or motivate one of ordinary skill in the art at the time of invention to incorporate the teachings of *Sayers* with the channel structure disclosed in *Rezaiifar* and the dynamic link adaptation of *Hunte*. Again, the Examiner has merely provided a conclusory statement identifying an advantage allegedly provided by the teachings of *Sayers* (and Appellant does not admit that *Sayers* discloses such an advantage). In other words, the Examiner has not provided an explanation as to: (1) why it would have been obvious to one of ordinary skill in the art at the time of Appellant's invention (***without using Appellant's claims as a guide***) to modify the channel structure disclosed in *Rezaiifar* and the dynamic link adaptation disclosed in *Hunte* to include the data rates disclosed in *Sayers*; (2) how one of ordinary skill in the art at the time of Appellant's invention would have actually and successfully done so; and (3) how doing so would purportedly meet the limitations of Claims 8 and 21. Thus, there is no "factual inquiry" in this reasoning, and this reasoning surely cannot be said to be "thorough and searching." Indeed, if it were sufficient for Examiners to merely point to a purported advantage of one reference and conclude that it would have been obvious to combine of modify that reference with other references simply based on that advantage (which, as should be evident from the case law discussed above, it certainly is not), then virtually any two or more references would be combinable just based on the fact the one reference states an advantage of its system. Of course, as the Federal Circuit has made clear and as discussed above, that is not the law.

For at least these reasons, Appellant respectfully submits that the proposed *Rezaiifar-Hunte-Sayers* combination is improper with respect to in Appellant's dependent Claims 8 and 21 and should be reversed by the Board.

Conclusion

Appellant has demonstrated that the present invention, as claimed, is clearly distinguishable over the prior art cited by the Examiner. Therefore, Appellant respectfully requests the Board to reverse the final rejections and instruct the Examiner to issue a Notice of Allowance with respect to all pending claims.

Appellant believes that no other fees are due, however, the Commissioner is hereby authorized to charge any fees or credit any overpayment to Deposit Account No. 19-2179 of Siemens Corporation.

Date: Dec. 12, 2005

Respectfully requested,

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Appendix A

IN THE CLAIMS:

1. (Previously Presented) A method of changing a physical data rate of an air interface on a per channel basis, the method comprising:

providing a plurality of logical communication channels, the plurality of logical communication channels being configured to communicate a signal;

providing a control channel that assigns data rates to the plurality of logical channels, the control channel including interfered carrier information; and

changing the data rates of the plurality of logical channels on a per channel basis.

2. (Original) The method of claim 1, further comprising providing a high data rate channel.

3. (Original) The method of claim 1, further comprising using a frequency hopping spread spectrum method to transmit the signal over the plurality of logical communication channels.

4. (Previously Presented) The method of claim 1, further characterized in that the control channel operates at a low data rate.

5. (Previously Presented) The method of claim 1, further characterized in that the plurality of logical communication channels operate at a data rate selected by the control channel.

6. (Previously Presented) The method of claim 5, further characterized in that the selected data rate is a multiple of a basic data rate.

7. (Previously Presented) The method of claim 1, further characterized in that logical communication channels having a high data rate communicate data information and logical communication channels having a low data rate communicate voice information.

8. (Previously Presented) The method of claim 7, further characterized in that the high data rate is between 32 k bits/see and 256 k bits/see and the low data rate is between 16 k bits/see and 32 k bits/sec.

9. (Previously Presented) The method of claim 1, further characterized in that, the signal is communicated between a portable telephone and a base station.

10. (Previously Presented) An air interface comprising:

at least one logical communication channel configured to communicate a signal; and

a control channel that assigns a data rate to each of the at least one logical communication channel, the control channel being configured to change the data rate assigned to each of the at least one logical communication channel based upon signal quality information about data communicated with the signal.

11. Canceled.

12. (Currently Amended) The air interface of claim 10 claim 11, further characterized in that the information about data communicated with the signal further comprises data type information.

13. (Canceled)

14. (Previously Presented) The air interface of claim 10, further characterized in that the communicated signal is transmitted using a frequency hopping spread spectrum method.

15. (Previously Presented) The air interface of claim 10, further characterized in that the control channel includes interfered carrier information.

16. (Previously Presented) The air interface of claim 10, further characterized in that the control channel uses cyclic redundancy checks (CRC) to determine whether the at least one logical communication channels are disturbed.

17. (Previously Presented) A wireless communication system which provides for low data rate services as well as higher data rate services without a reduction in sensitivity characteristic to switching modulation schemes, the communication system comprising:

a communication device capable of receiving and sending communication signals;

a base station capable of receiving and sending communication signals; and

an air interface of wireless communications between the communication device and the base station, the air interface including a control channel and a plurality of logical communication channels, the control channel changing data rates to the plurality of logical communication channels on a per channel basis based upon signal quality information about data communicated with the signal.

18. (Previously Presented) The communication system of claim 17, further characterized in that the air interface includes a high data rate communication channel.

19. (Previously Presented) The communication system of claim 17, further characterized in that the control channel operates at a lowest possible data rate, thereby using a lowest bandwidth and ensuring best sensitivity.

20. (Previously Presented) The communication system of claim 17, further characterized in that logical communication channels having a high data rate communicate data information and logical communication channels having a low data rate communicate voice information.

21. (Previously Presented) The communication system of claim 20, further characterized in that the high data rate is between 32 k bits/sec and 256 k bits/see and the low data rate is between 16 k bits/sec and 32 k bits/sec.

22. (Previously Presented) The communication system of claim 17, further characterized in that the communication device is a personal digital assistant (PDA).